

# CHAPTER 13

## RADIOS

### Section 13-1. AN/URT-33A Radio Beacon Set

#### 13-1. DESCRIPTION.

13-2. The AN/URT-33A Radio Beacon Set is an emergency radio beacon transmitter which, when activated, transmits a tone-modulated radio frequency signal from the downed aircrewmember to the rescue party.

#### NOTE

FST for AN/URT-33A Radio Beacon is NAVAIRWARCENACDIV DET, Indianapolis, IN 46219.

#### 13-3. CONFIGURATION.

13-4. The AN/URT-33A is battery-powered and watertight and contains a flexible antenna and telescoping antenna. The set can be automatically activated by the automatic deployment device, or manually activated by means of the ON-OFF switch. The AN/URT-33A uses

a backplate which allows battery replacement to be accomplished externally (figure 13-1).

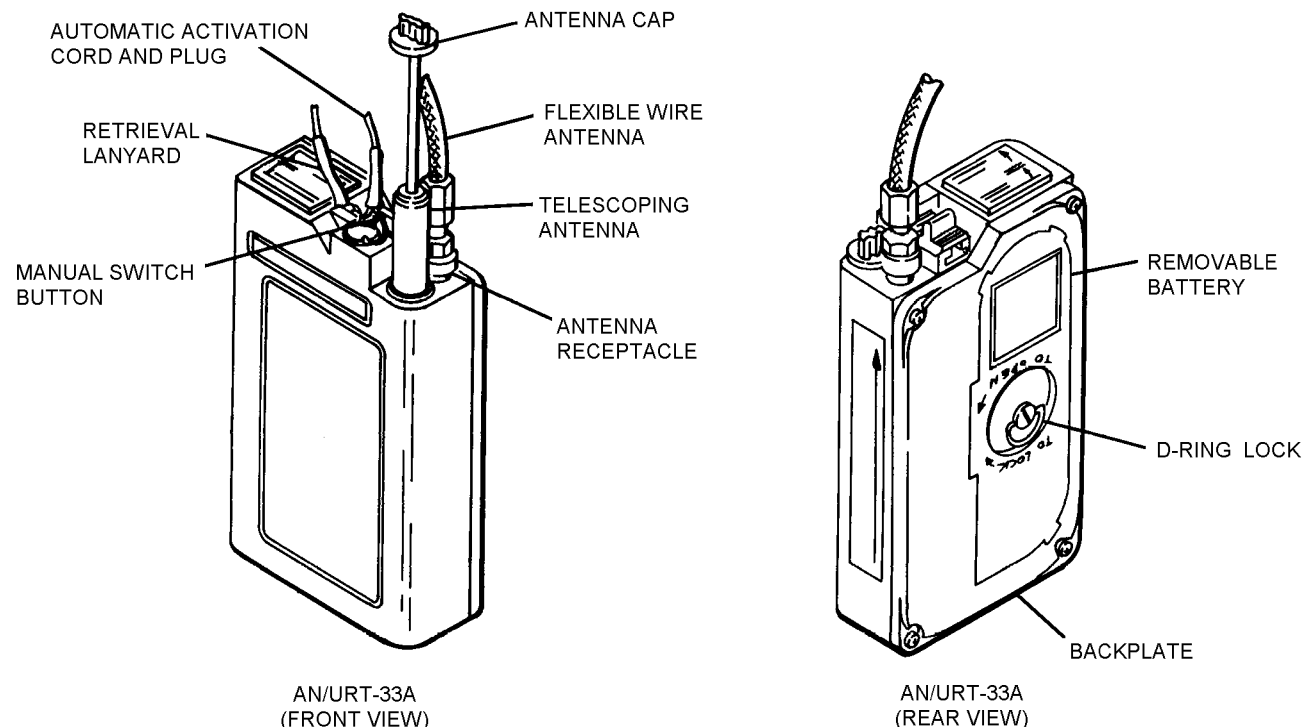
#### 13-5. APPLICATION.

13-6. The AN/URT-33A helps rescue personnel locate a downed aircrewmember during rescue operations over land or water. The AN/URT-33A can be automatically activated by various means.

#### 13-7. MAINTENANCE.

13-8. Maintenance of the AN/URT-33A consists of inspection and other maintenance actions. For all maintenance procedures, refer to NAVAIR 16-30URT33-1.

13-9. **INSPECTION.** Inspection of the AN/URT-33A shall be performed at the same time as the equipment in which it is installed, however, inspection cycle may not exceed the maximum period specified in NAVAIR 16-30URT33-1.



013001

## Section 13-2. AN/PRC-90 Radio Set

### 13-10. DESCRIPTION.

13-11. The AN/PRC-90 Radio Set is a dual-channel personal emergency rescue transceiver, used principally for two-way voice or MCW (modulated continuous wave) communication between a downed aircrewmember and a rescue aircraft. Provisions are included for transmitting tone (MCW) and swept-frequency homing beacon signals to guide rescue efforts.

#### NOTE

FST for AN/PRC-90 Series Radio Set is NAVAIRWARCENACDIV DET, Indianapolis, IN 46219.

### 13-12. CONFIGURATION.

13-13. The AN/PRC-90 is battery-powered and contains a flexible antenna, an interchangeable telescopic

antenna, a function switch (knob and indicator), an MCW button for Morse code, a volume control dial, and an earphone (figure 13-2).

### 13-14. APPLICATION.

13-15. The AN/PRC-90 is intended to provide a means of signal and voice communication between a downed aircrewmember and the rescue party in the event of an emergency.

### 13-16. MAINTENANCE.

13-17. Maintenance of the AN/PRC-90 Radio Set consists of inspection and other maintenance actions. For all maintenance procedures, refer to NAVAIR 16-30PRC90-2.

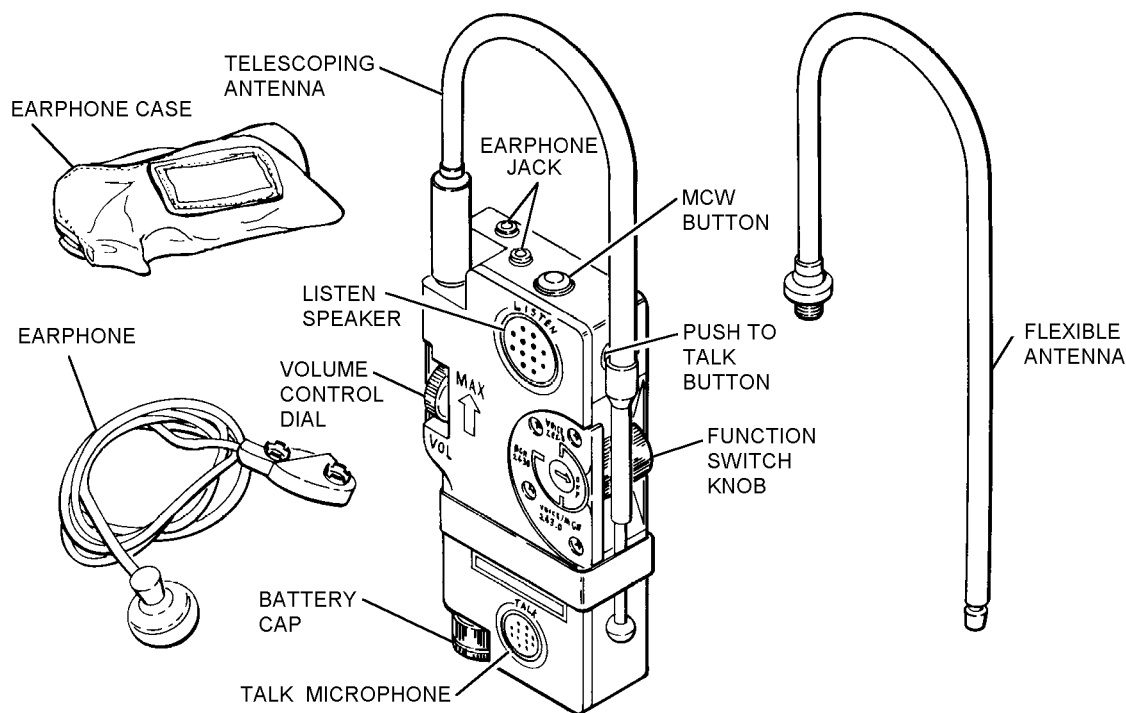


Figure 13-2. AN/PRC-90 Radio Set

013002

## Section 13-3. AN/PRC-112, AN/PRC-112B and AN/PRC-112B1 Survival Radios

### 13-18. DESCRIPTION.

13-19. The AN/PRC-112, AN/PRC-112B or AN/PRC-112B1 Survival Radio is a personal emergency rescue transceiver, used principally for communications between a downed aircrewmember and a rescue aircraft. The radio has three functions: Transponder Mode, which detects the interrogated ID code, Emergency Beacon Mode, which transmits an emergency beacon compatible with conventional UHF Automatic Direction Finding (ADF) equipment and the AN/ARS-6(V) and Voice Communication Mode, which provides for two-way voice transmission over Line-of-Sight paths.

13-20. The AN/PRC-112B and AN/PRC-112B1 are combat survival radios. The primary purpose is reporting a survivor's position and status in a Combat Search and Rescue (CSAR) environment. It can be used for two-way communications, transmit a locator beacon signal and transmit its position to a remote interrogator for use in SAR operations. It also includes extensive Global Positioning System (GPS) capabilities.

#### NOTE

FST for AN/PRC-112, AN/PRC-112B and AN/PRC-112B1 is NAVAIRWARCENAC-DIV DET, Indianapolis, IN 46219.

### 13-21. CONFIGURATION.

13-22. The AN/PRC-112, AN/PRC-112B and AN/PRC-112B1 are battery-powered and contain a flexible antenna, a function switch (knob and indicator), a volume control dial and an earphone (figure 13-3).

### 13-23. APPLICATION.

13-24. The AN/PRC-112, AN/PRC-112B and AN/PRC-112B1 are intended to provide a means of signal and voice communication between a downed aircrewmember and the rescue party in the event of an emergency.

### 13-25. MAINTENANCE.

13-26. For operation, maintenance and inspection of the AN/PRC-112, refer to NAVAIR 16-35PRC112-1. For operation, maintenance and inspection of the AN/PRC-112B and AN/PRC-112B1, refer to NAVAIR 16-35PRC112-1-1.

13-27. **INSPECTION.** Inspection of the Survival Radios shall be performed in accordance with the applicable manual for the radio. Refer to paragraph 13-26.

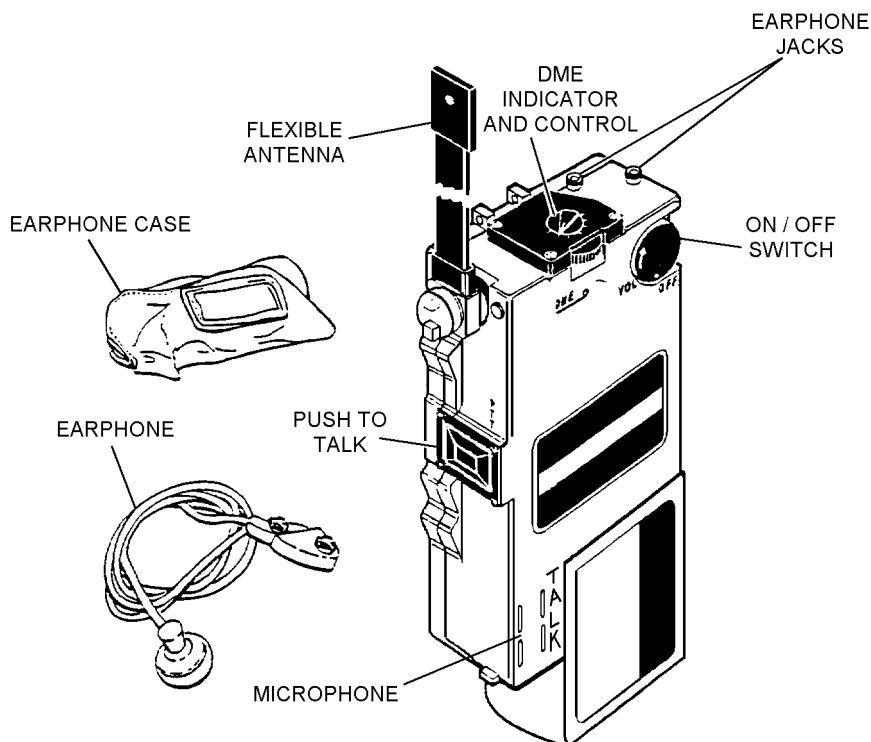


Figure 13-3. AN/PRC-112, AN/PRC-112B and AN/PRC-112B1 Survival Radios

013003

## Section 13-4. AN/CRT-3 and AN/CRT-3A Radio Sets

### 13-28. DESCRIPTION.

13-29. The AN/CRT-3 and AN/CRT-3A Radio Sets are emergency transmitting systems which enable downed aircrewmembers to send an automatic distress signal or, by using a manual key, to send coded signals to rescue parties.

### 13-30. CONFIGURATION.

13-31. The AN/CRT-3 and AN/CRT-3A Radio Sets are identical in all respects except for the transmitter. The AN/CRT-3A, which is discussed in this section, has a higher frequency range than the AN/CRT-3.

13-32. The AN/CRT-3A consists of a hand-generated, self-contained power supply and a keying assembly. Also included are: a three-position selector switch, pushbutton telegraph key, signal lamp and jack, antenna assembly, hand crank (for the generator), wrench, indi-

cator windows (to indicate generated speed and radio signal transmittal), balloon and kite (to raise antenna assembly wire), and a hydrogen generator (to inflate balloon). All these items are packed into a brilliant orange-yellow equipment container which will float if dropped into water (figure 13-4).

### 13-33. APPLICATION.

13-34. The AN/CRT-3A is carried in an aircraft and is dropped by parachute to downed aircrewmembers. The set can transmit signals in two different frequencies to be received by long-range and short-range rescue stations.

### 13-35. MAINTENANCE.

13-36. Maintenance of the AN/CRT-3A shall consist of inspection and other maintenance actions. For maintenance procedures, refer to NAVAIR 16-30CRT3-2.

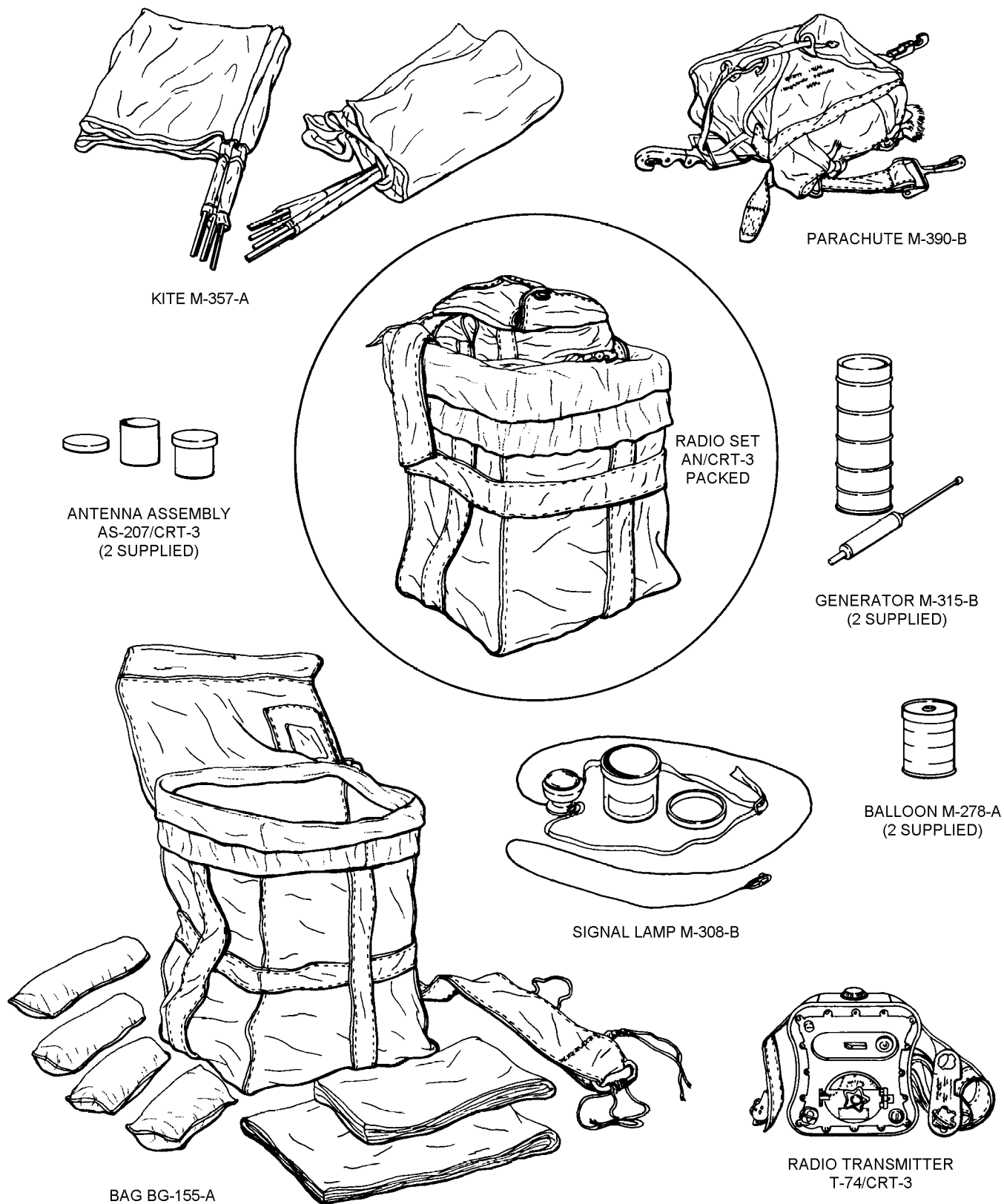


Figure 13-4. AN/CRT-3 Radio Set

013004

## Section 13-5. AN/PRT-5 Radio Transmitting Set

### 13-37. DESCRIPTION.

13-38. The AN/PRT-5 Radio Transmitting Set is an emergency transmitter which transmits a tone-modulated radio frequency signal in both high frequency (HF) and ultra high frequency (UHF) ranges. The set has an inflatable float assembly which allows it to float at sea or sit upright on land. The battery pack is designed to provide 72-hour continuous operation at 25°C (77°F). No provisions have been made for voice or code communications or for receiving signals from search aircraft.

#### NOTE

FST for AN/PRT-5 Radio Transmitting Set is NAVAIRWARCENACDIV DET, Indianapolis, IN 46219.

### 13-39. CONFIGURATION.

13-40. The AN/PRT-5 is battery-powered and contains a UHF antenna, an HF telescopic antenna, a power

switch, and a float assembly which is inflated by a CO<sub>2</sub> cartridge or mouth valve. The top part of the transmitting set is the electronic housing assembly and the lower part is the battery case. The entire assembly is packed into a carrying case to be stored in an aircraft (figure 13-5).

### 13-41. APPLICATION.

13-42. The AN/PRT-5 is intended to signal the location of downed aircrewmembers to search aircraft, surface vessels, or coastal-based DF stations.

### 13-43. MAINTENANCE.

13-44. Maintenance of the AN/PRT-5 consists of inspection and other maintenance actions. For all maintenance, refer to NAVAIR 16-30PRT5-1.

13-45. INSPECTION. Inspection of the AN/PRT-5 shall be performed concurrent with the equipment in which it is installed.

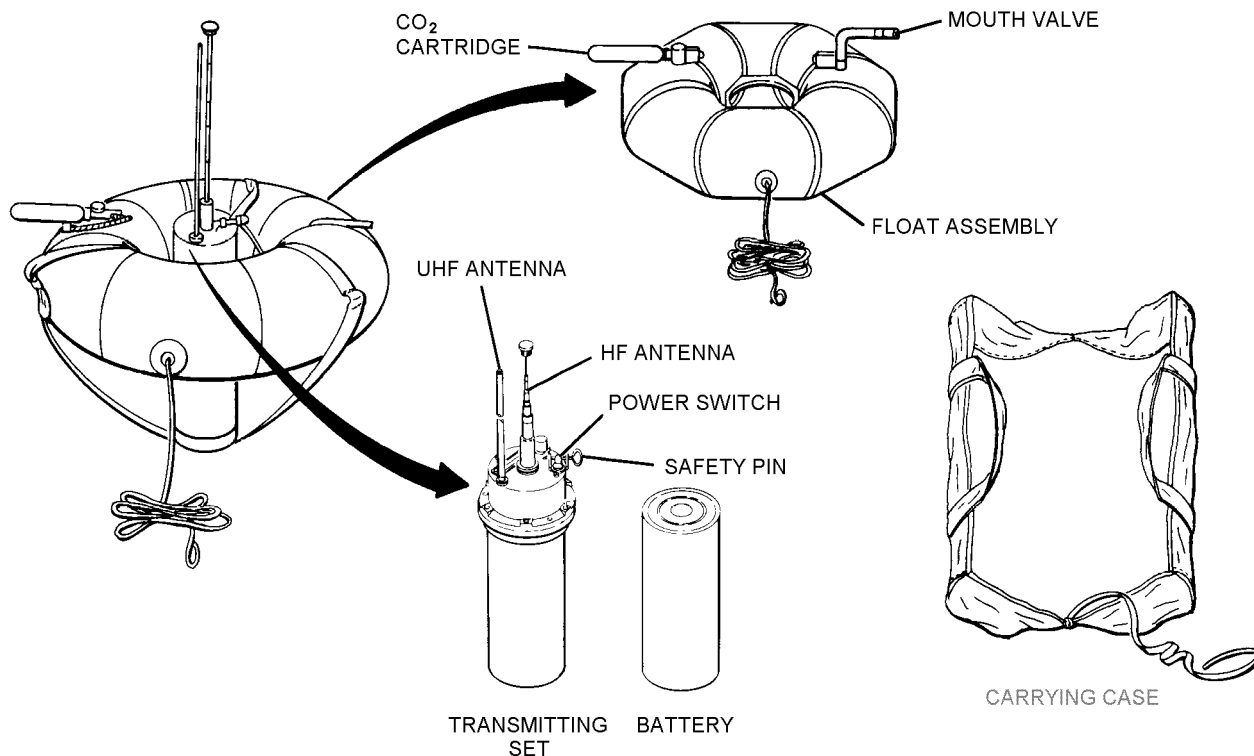


Figure 13-5. AN/PRT-5 Radio Transmitting Set

013005

## Section 13-6. AN/PRC-149 Radio Set and C-12631/PRC-149 Radio Control Unit

### 13-46. DESCRIPTION.

13-47. The AN/PRC-149 Radio Set (figure 13-6) is a personal non-combat emergency communication radio and emergency location beacon transmitter. The Radio Set operates in voice transceiver mode on three manually selectable, emergency frequencies. A triple frequency beacon-operating mode provides transmissions on all three internationally recognized search and rescue frequencies.

13-48. The C-12631/PRC-149 (figure 13-7) Radio Control Unit (voice box w/cable) connects to the AN/PRC-149 to make it a SAR swimmer's radio. When attached, the control unit assumes control of the Push-To-Talk (PTT) and the UP and DOWN volume control functions. Connecting the SAR swimmer's radio control unit disables the corresponding functions in the AN/PRC-149.

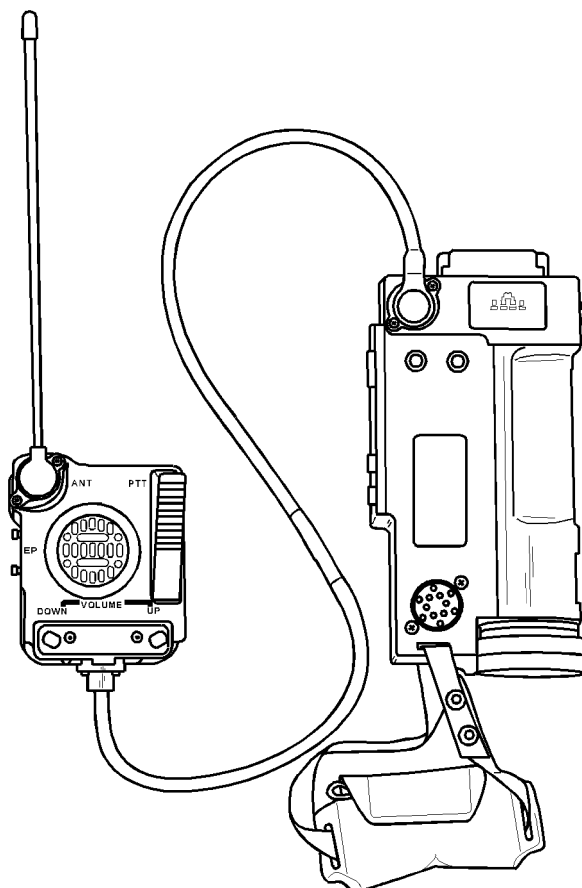


Figure 13-6. AN/PRC-149 Radio Set

013006

### 13-49. CONFIGURATION.

13-50. The AN/PRC-149 is battery-powered and contains a flexible VHF/UHF antenna, GPS antenna, LED display, ON/OFF Switch, volume control switch, PTT switch, Electret microphone, speaker, and earphones.

### 13-51. APPLICATION.

13-52. The AN/PRC-149 is intended to provide a means of signal and voice communication between a downed aircrewmember and the rescue party in the event of an emergency.

13-53. The C-12631/PRC-149 Radio Control Unit provides a means of signal and voice communications between the SAR swimmer and the SAR aircraft.

### 13-54. MAINTENANCE.

13-55. Maintenance of the AN/PRC-149 and C-12631/PRC-149 Radio Control Unit consists of Place-In-Service, Preflight, Postflight and Special Inspections. Maintenance shall be performed at the Organizational level or above. For all maintenance procedures, refer to NAVAIR 16-30PRC149-1.

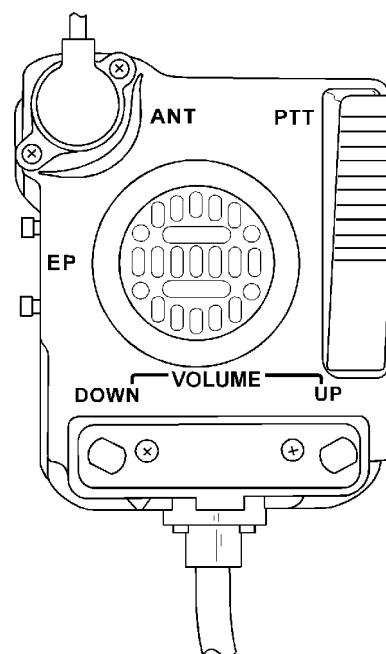


Figure 13-7. C-12631/PRC-149 Radio Control Unit

013007

## Section 13-7. AN/URT-140 Radio Beacon Set

### 13-56. DESCRIPTION.

13-57. The AN/URT-140 Radio Beacon Set (figure 13-8) is an emergency radio beacon transmitter which, when activated, transmits distress information for detection by Search and Rescue forces at three internationally recognized SAR frequencies.

### 13-58. CONFIGURATION.

13-59. The AN/URT-140 is battery powered and water-tight. It contains a flexible antenna, mode control switch, magnetic actuator plug, and mechanical actuator assembly. The set can be automatically activated by the mechanical actuator assembly or manually activated by means of the mode control switch.

### 13-60. APPLICATION.

13-61. The AN/URT-140 transmits distress information to assist rescue personnel in locating a downed aircrew-member during rescue operations over land or water.

### 13-62. MAINTENANCE.

13-63. Maintenance of the AN/URT-140 consists of Place-In-Service, Preflight, Postflight and Special Inspections. Maintenance shall be performed at the Organizational level or above. For all maintenance procedures, refer to NAVAIR 16-30URT140-1.

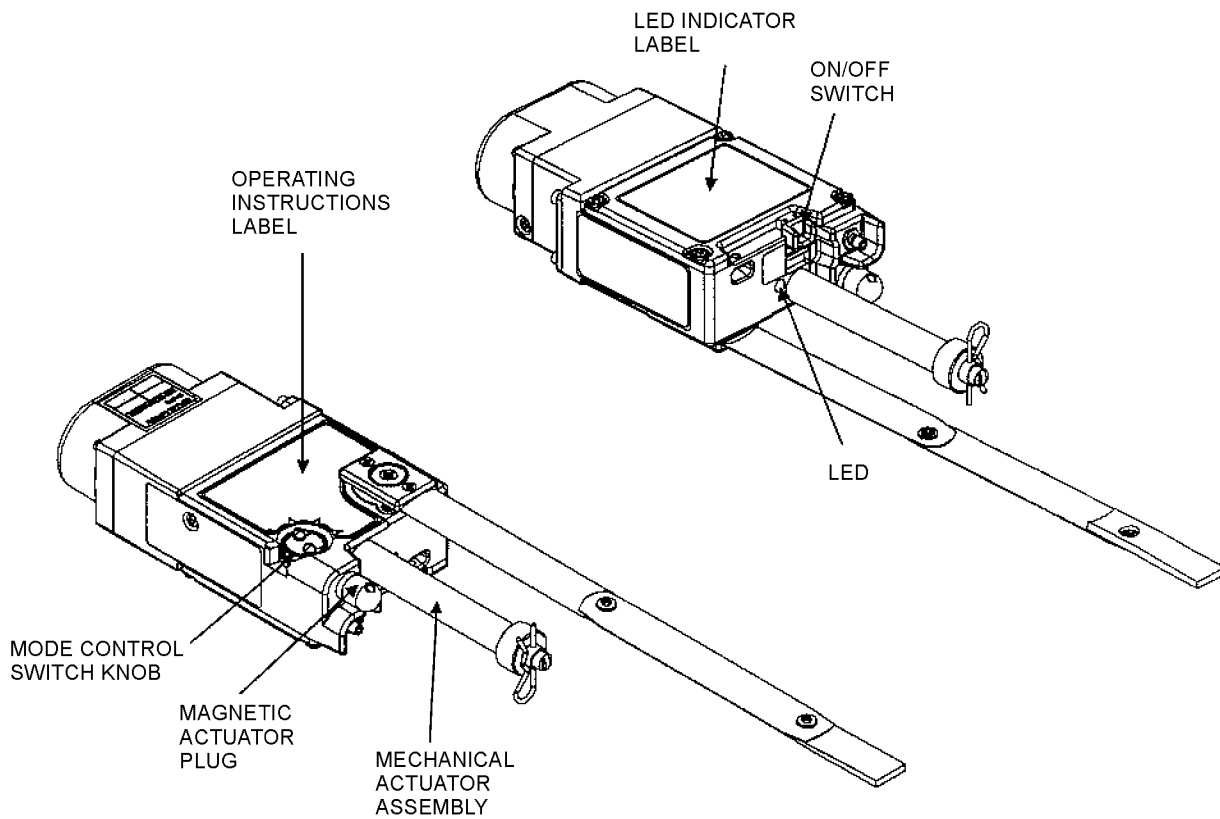


Figure 13-8. AN/URT-140 Radio Beacon Set

013008